



#248 AF 2100
PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

de JONG et al.

Application No: 09/275,727

Filed: March 24, 1999

For: STORAGE AREA NETWORK
ADMINISTRATION

) Attorney Docket No: ADAPP091A
)
) Examiner: Tran, Mylinh T.
)
) Group Art Unit: 2174
)
) Date: December 31, 2003
)
)
)

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(PATENT APPLICATION -- 37 CFR 192)

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This application is on behalf of:

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Respectfully submitted,
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PATENT



**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

EX PARTE de JONG et al.

Application for Patent

Filed March 24, 1999

Application No. 09/275,727

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FOR:

STORAGE AREA NETWORK ADMINISTRATION

APPEAL BRIEF

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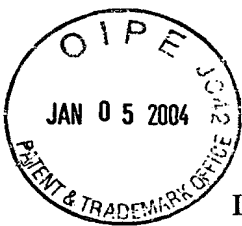
**MARTINE & PENILLA, LLP
Attorneys for Applicants**

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APPENDIX A - CLAIMS ON APPEAL



I. REAL PARTY IN INTEREST

The real party in interest is Adaptec, Inc., the assignee of the present application.

II. RELATED APPEALS AND INTERFERENCES

The undersigned is not aware of any related appeals and/or interferences.

III. STATUS OF THE CLAIMS

A total of 24 claims were presented during prosecution of this application. Claims 1-24 were subject to a restriction requirement (grouped as Claims 1-21 and Claims 22-24). Subsequently, Claims 1-21 were elected without traverse, and Claims 22-24 were cancelled. The Applicants also cancelled Claim 19 during prosecution. The Applicants appeal rejected Claims 1-18 and 20-21.

IV. STATUS OF THE AMENDMENTS

A Request for Continued Examination (RCE) was filed December 2, 2002. The original application was filed on March 24, 1999. All amendments have been entered, leaving rejected Claims 1-18 and 20-21.

V. SUMMARY OF THE INVENTION

Broadly speaking, the present invention provides a system for configuring, administering, and managing storage resources that are shared in a network environment. More specifically, the present invention provides a storage area network management and configuration system. The system includes an enterprise network that includes a plurality of computer systems. The plurality of computer systems within the enterprise network includes server computer systems and client computer systems. The server computer systems include a server component, and the client computer systems include a client

component. The system also includes a storage enclosure that is connected to a server computer system within the enterprise network. In one embodiment, the storage enclosure is configured to have a RAID array of disks. The system further includes a graphical user interface (GUI) provided by the client component at a client computer system within the enterprise network. The GUI provides a graphical representation of the enterprise network and icon links to configuration tools for selecting and structurally defining the storage enclosure connected to the server computer system. Thus, the GUI provided at the client computer system enables selection and structural definition of the disks within the storage enclosure connected to the server computer system. In one embodiment, through the configuration tools provided by the GUI, any one of the available drives in the storage enclosures can be configured into a particular RAID-based array, monitored for failures, and modified to meet different storage needs.

In one embodiment, the present invention is implemented as a combination of hardware and software that allows users to easily configure, manage, and monitor RAID-based disk arrays in an enterprise. (p. 10, lines 8-11) As used herein, an enterprise may be represented as an example company having a number of server computer systems and RAID-based disk arrays resident at selected ones of the number of server computer systems. (p. 10, lines 11-13) In following, implementation of the present invention can be based on a client-server model. (p. 11, lines 4-7)

The storage area network management and configuration system of the present invention includes a variety of features for allowing system administrators to remotely configure and monitor RAID arrays, controllers, and associated subsystem components. (p. 11, lines 4-7) In one embodiment, there can be multiple administration systems on an enterprise network backbone, wherein each administration system can see all other servers, and each server can have multiple storage enclosures. (p. 11, lines 7-9) The client software

(i.e., client component), when loaded onto a computer of the enterprise, enables a user to administer storage enclosures connected to servers having the server software (i.e., server component). (p. 11, lines 9-11)

Figure 1 illustrates a computer block diagram 100 of an enterprise network 102, in accordance with one embodiment of the present invention. (Fig. 1A) As shown, the enterprise network 102 may have a plurality of server computer systems 104a through 104d. (p. 11, lines 13-14) Typically, each of the server computer systems 104a-104d, may serve to provide access to groups of users in the enterprise and to share data stored on those computer systems (or clusters). (p. 11, lines 15-17) In this embodiment, the server computer systems 104a-104d may have one or more storage enclosures 106a through 106g which serve to house a plurality of hard disk drives. (p. 11, lines 19-21) In one embodiment, the storage enclosures 106a-106g are RAID-based disk arrays. (p. 11, lines 21-22) Additionally, a client computer 108 is shown connected to the enterprise network 102. (p. 12, lines 1-2)

In one embodiment, software used to administer the storage enclosures 106a-106g (e.g., RAID-based disk arrays) will be in the form of a server component and a client component. (p. 12, lines 4-5) For instance, if the storage administrator desires to configure, monitor, or service one of the storage enclosures 106a-106g connected to one of the server computer systems 104a-104d on the enterprise network 102, the administrator can simply log on to any computer having the client component. (p. 12, lines 5-8) Thus, the administrator can administer any of the storage enclosures 106a-106g in the enterprise network 102 via any computer having the client component software. (p. 12, lines 9-11) With the present invention, the client component allows the administrator to log-on to the enterprise network through an easy-to-use GUI and administer any of the storage enclosures. (p. 12, lines 12-14)

The server component of the software allows the server computer systems 104a-104d to intelligently communicate with the various storage enclosures 106a-106g connected thereto. (p. 12, lines 18-20) By way of example, server computer 104b will have the server component which will enable it to share and make accessible the storage enclosures 106b-106d to the enterprise network. (p. 12, lines 20-22) Accordingly, the system administrator can now log-on to any computer having the client component to gain access to the enterprise network for purposes of monitoring, configuring, and servicing any of the storage enclosures 106b-106d, including any of the individual hard drives contained within the storage enclosures 106b-106d. (p. 13, lines 2-5) In more general terms, the GUI provided by the client component of the present invention will enable a user to easily modify any of the disk arrays connected to the enterprise network, monitor all of the storage enclosures and selected disks connected to the storage enclosures, build specific RAID array configurations, and be alerted by an event notifier of when a problem is detected with a particular storage enclosure or a particular disk that is within a particular storage enclosure. (p. 13, lines 6-11)

Figure 2 illustrates an exemplary GUI 150 that can be presented to a user when administering storage enclosures over the enterprise network from a computer having the client component. (Fig. 1C and p. 14, lines 20-23) The GUI 150 provides the user with immediate access to an overview of the functionality provided by the storage administration system. (p. 15, lines 1-3) Thus, the GUI 150 provides a user with quick and visually salient access to basic functional tools and links. (p. 15, lines 3-4) In this embodiment, the functional tools include an Array Modifier 152, an Enterprise Monitor 154, an Array Builder 156, and an Event Notifier 158. (p. 15, lines 4-6) Also provided is a link to view the enterprise 160, a link to list Unconfigured Hardware 162, and a link to Templates 164 that can be used to quickly configure hardware. (p. 15, lines 6-8)

Figure 3 illustrates an Array Builder window 156a that is presented to the user upon selecting the Array Builder 156. (Fig. 26 and p. 15, lines 21-22) The Array Builder window 156a provides selection tabs 156b and 156c to allow array building from an array template or from scratch, respectively. (Fig. 26) Templates provide a faster and simpler way for users to build an array. (p. 17, lines 8-10) The template is used to specify all parameters and settings that are required to build a RAID array, with the exception of selecting the actual disks to use in the array. (p. 17, lines 3-5) The top container in the Array Builder window 156a provides the user with a list of unconfigured subsystems. (p. 23, lines 17-18) The bottom container in the Array Builder window 156a lists available templates. (p. 23, lines 18-19) When the array is built from the template, a template icon can simply be dragged onto array hardware that is selected to receive the configuration. (p. 17, lines 10-14) Once the user chooses a template from the list of templates in the Array Builder window 156a, the user is presented with a confirmation dialog that allows for selection of the drives to be used in the array and initiation of the build process. (p. 17, lines 14-16) As alternative to building an array from an array template, the Array Builder window 156a also provides a Build-from-Scratch option 156c for more experienced users. (p. 23, lines 21-22) The Build-from-Scratch option allows the user to build an array for the selected subsystem “manually” by specifying each parameter. (p. 23, line 22 through p. 24, line 1)

It should be appreciated that the above discussion represents only a summary of the present invention. A more in-depth discussion of the present invention, particularly the various features of the GUI provided by the client component, are provided in the Detailed Description section of the specification.

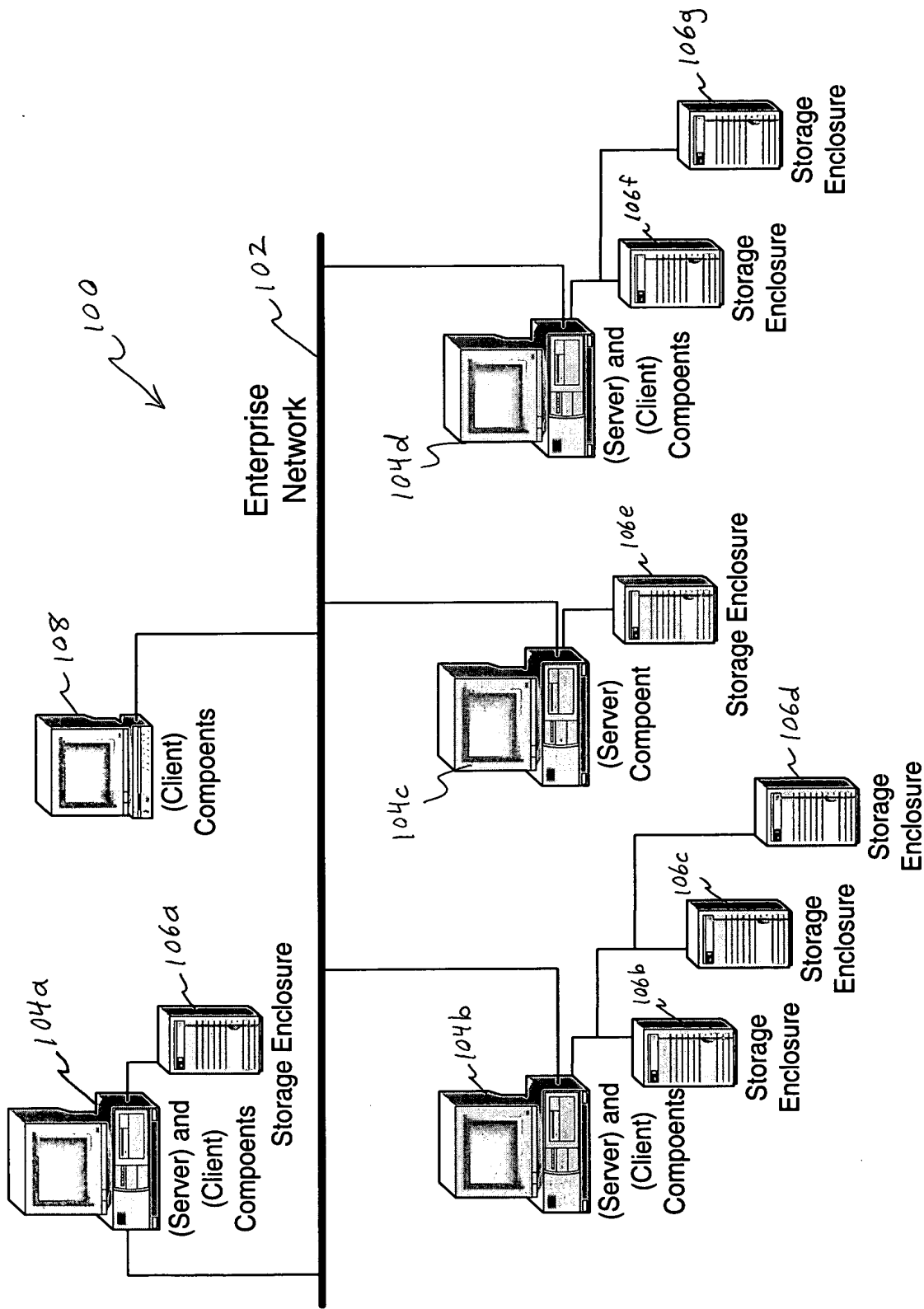


Fig. 1

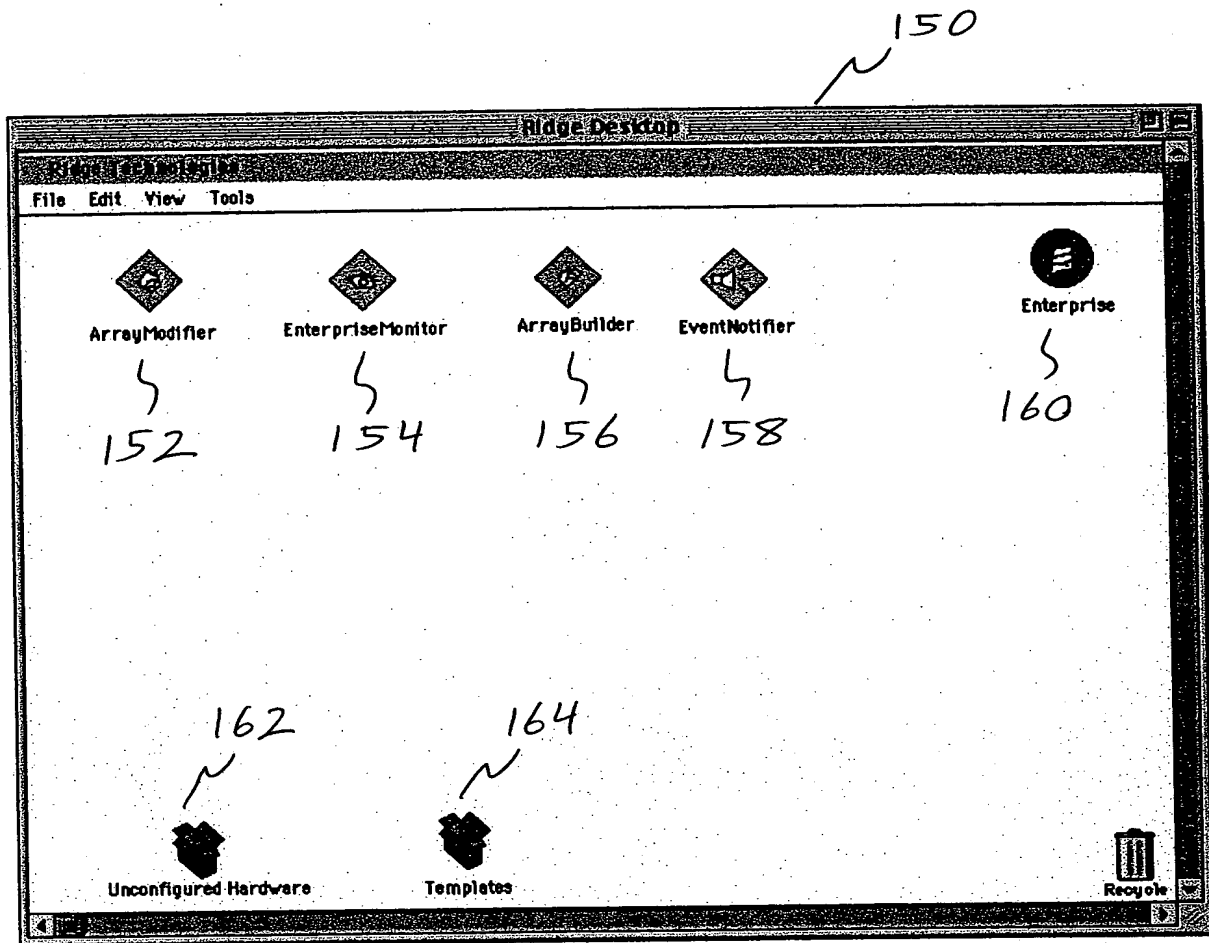


Fig. 2

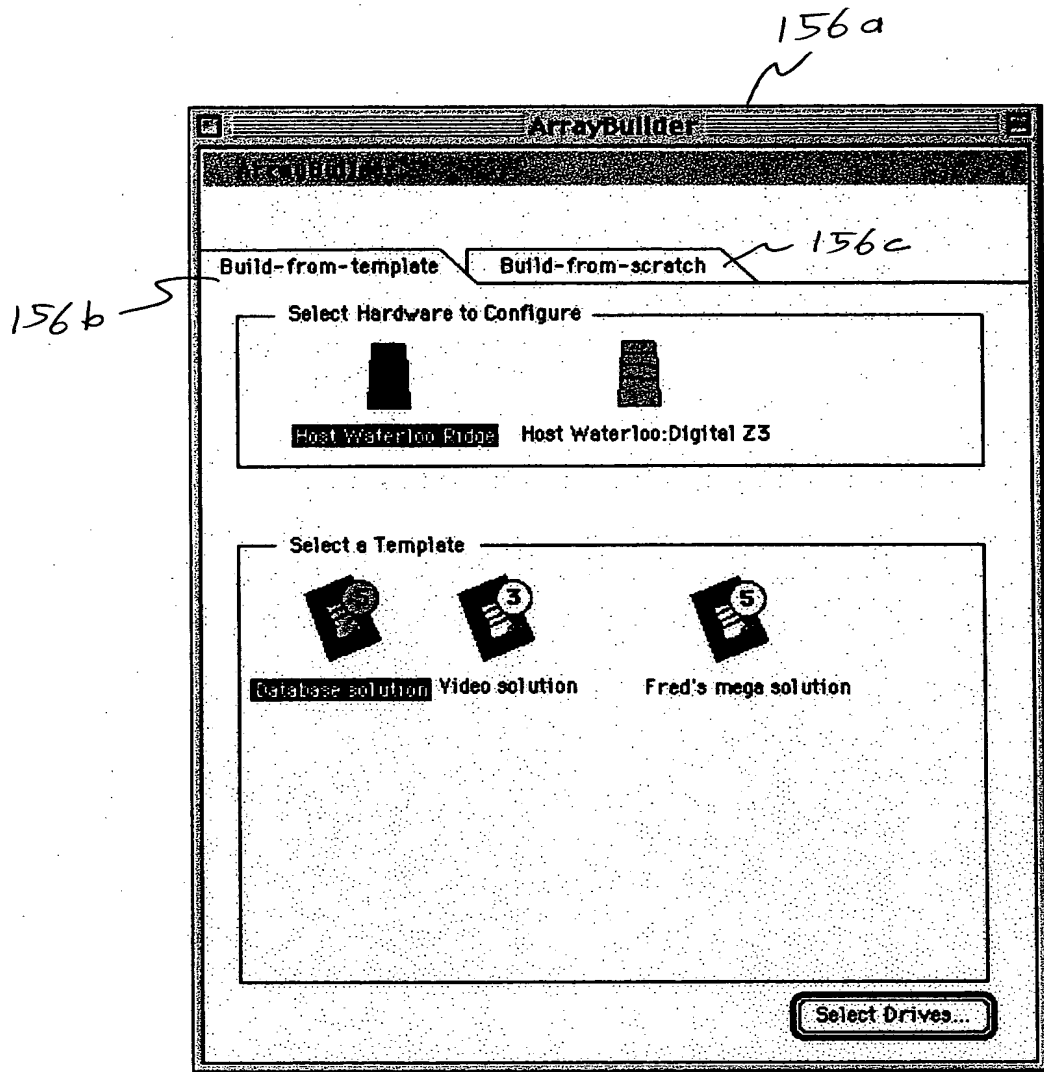


Fig. 3

VI. ISSUES

The issues presented in this appeal are whether the rejections under 35 U.S.C. §103(a) of the claims under appeal are proper. The issues therefore are as follows:

- A. Are Claims 1-2, 6-18, and 20-21 properly rejected under 35 U.S.C. §103(a)?
- B. Are Claims 3-5 properly rejected under 35 U.S.C. §103(a)?

VII. GROUPING OF THE CLAIMS

Applicants propose two groups of claims. The claims within each group will stand or fall together. The first group includes Claims 1-2, 6-18, and 20-21 ("Group I"). The second group includes Claims 3-5 ("Group II"). Each group will be argued separately.

VIII. ARGUMENTS

- A. **The references relied upon by the Examiner, either separately or in combination, do not motivate or suggest to one of ordinary skill in the art at the time of the invention to combine the reference teachings in a manner that would make the invention as recited in Claims 1-2, 6-18, and 20-21 (Group I) obvious.**

Rejections

Claims 1-2 and 14-18 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Wollrath et al. ("Wollrath") (U.S. Pat. No. 6,263,350) in view of Smith et al. ("Smith") (U.S. Pat. No. 5,829,053), and further in view of Ofer et al. ("Ofer") (U.S. Pat. No. 5,890,204).

Claims 6-10, 13, and 20-21 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Wollrath in view of Smith, further in view of Ofer, and further in view of Leong et al. ("Leong") (U.S. Pat. No. 6,269,398).

Claims 11-12 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Wollrath in view of Smith, further in view of Ofer, further in view of Leong, and further in view of Madsen et al. (U.S. Pat. No. 6,151,620).

Summary of Group I Claims

Claim 1 represents the broadest independent claim of Group I (i.e., Claims 1-2, 6-18, and 20-21). Since the claims of Group I will stand or fall together, the Applicants choose to argue the patentability of Claim 1. Therefore, the arguments presented in Sections VIII.A. through VIII.D. of this Appeal Brief will be directed to Claim 1. However, for completeness, each of the claims in Group I are briefly discussed in the following summary.

Claim 1 defines a storage area network management and configuration system ("system"). The system includes an enterprise network that includes a plurality of computer systems. The plurality of computer systems within the enterprise network includes server computer systems and client computer systems. The server computer systems include a server component, and the client computer systems include a client component. The system also includes a storage enclosure that is connected to a server computer system within the enterprise network. The storage enclosure is configured to have a RAID array of disks. The system further includes a graphical user interface (GUI) provided by the client component at a client computer system within the enterprise network. The GUI provides a graphical representation of the enterprise network and icon links to configuration tools for selecting and structurally defining the RAID array of disks of the storage enclosure connected to the server computer system. Thus, the GUI provided at the client computer system enables selection and structural definition of the RAID array of disks within the storage enclosure connected to the server computer system.

Claims 2 and 6-15 define specific configuration tools and associated features as referred to by the icon links in the GUI of Claim 1. Claim 16 defines an ability of the client component, at the client computer system, to provide a user administrator with management and configuration control of the storage enclosure of the enterprise network, wherein the storage enclosure is connected to the server computer system. Claim 17 further defines the enterprise network as being capable of including a plurality of storage enclosures.

Claim 18 includes the features of Claim 1, plus an additional requirement that the GUI be configured to enable a user to remotely assign a level to the array of drives. The term remotely assign implies from a client computer system having the GUI to a server computer system to which the storage enclosure is connected. Claim 20 further defines the GUI to have a number of different types of icon links. Claim 21 is essentially a combination of Claims 18 and 20.

Summary of Wollrath Reference

Wollrath teaches a method for handling the usage of resources, namely memory resources, in a distributed computing environment. When multiple computer programs or objects use memory to complete an operating task, the memory is allocated to that computing entity until it no longer needs the memory. However, in some cases, the allocated memory is not de-allocated and made available to other computing entities. For this reason, Wollrath uses a method for leasing storage locations in a pre-configured network computing system. The storage location leasing method includes a receipt of a lease request, a grant or denial of a lease request, a receipt of a lease modification request, and a reclamation of a leased storage location. The storage location leasing method ensure that memory resources get de-allocated when no longer in use by computing entities. The

storage location leasing method is required to be implemented on a network computer system that has been pre-configured without need for further configuration management.

Summary of Smith Reference

Smith teaches a method for memory management by nesting partitioned storage devices that have separate partition managers and device drivers to create a plurality of virtual storage devices. The separation of partition managers and device drivers functions to allow for the nesting of partition formats and avoids the replication of partitioning codes. In an exemplary discussion, Smith teaches that the physical storage media may include one or more RAID arrays.

Summary of Ofer Reference

Ofer teaches the use of a limited graphical user interface (GUI) for determining the status and configuration of a mass storage system. Ofer also teaches the use of a limited GUI to modify the interconnections between ports associated with a host computer and a disk array. Specifically, the GUI taught by Ofer includes "... a pictorial representation of interconnections between ports connected to the disk array, enabling a user to modify the pictorial representation at the host to reconfigure the connections to the host computer and disk array ..."

Examiner's Position

The Examiner has relied upon the combination of Wollrath, Smith, and Ofer as a basis for rejecting each feature of Claim 1. The Examiner has stated that the motivation to combine Wollrath, Smith, and Ofer in the manner asserted by the Examiner to reject Claim 1 is as follows:

"It would have been obvious to one of ordinary skill in the art, having the teachings of Wollrath et al., Smith et al., and Ofer et al. before them at the time the invention was made to modify the network system and the storage enclosure taught by Wollrath et al. and Smith et al. to include the graphical user interface configuration of Ofer et al., for the purpose of making it more convenient to manage the storage device over the network as taught by Ofer et al."

Applicants' Rebuttal to Examiner's Position

With respect to Claim 1, an inventor skilled in the art at the time of the invention would not have looked to Wollrath in developing the claimed invention. Wollrath is related to resource leasing, which is an entirely different technology than that embodied in Claim 1 as a whole. Additionally, the teachings of Wollrath are not related to the teachings of either Smith or Ofer when considered in view of Claim 1. There is no suggestion or motivation, either explicitly or implicitly, in either Wollrath, Smith, or Ofer to have combined the teachings of Wollrath with the teachings of Smith and Ofer to arrive at the present invention as embodied in Claim 1. Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art. MPEP §2143.01 The test for obviousness is what the combined teachings of the references would have suggested to one of ordinary skill in the art. MPEP §2143.01 However, the level of ordinary skill in the art cannot be relied upon to provide the suggestion to combine references. *Al-Site Corp. v. VSI Int'l Inc.*, 174 F.3d 1308, 50 USPQ2d 1161 (Fed. Cir. 1999). A statement that modifications of the prior art to meet the claimed invention would have been within the ordinary skill of the art at the time the

claimed invention was made is not sufficient to establish a prima facie case of obviousness without some objective reason to combine the teachings of the references. *Ex parte Levengood*, 28 USPQ2d 1300 (Bd. Pat. App. & Inter. 1993).

The Examiner has stated that the motivation to combine the teachings of Wollrath with the teachings of Smith and Ofer would be "for the purpose of making it more convenient to manage the storage device over the network as taught by Ofer et al." The motivation to combine the cited art as suggested by the Examiner is simply a construction based on hindsight reasoning. The Applicants submit that neither Wollrath, Smith, Ofer, nor the combination thereof, provide the motivation to combine their respective teachings as suggested by the Examiner. The rationale for combining references requires a recognition either expressly or impliedly in the prior art or drawn from a convincing line of reasoning based on established scientific principles or legal precedent, that some advantage or expected beneficial result would have been produced by the combination of references. *In re Sernaker*, 702 F.2d 989, 994-95, 217 USPQ 1, 5-6 (Fed. Cir. 1983). The Applicants respectfully submit that the references neither expressly nor implicitly provide the motivation to combine their respective teachings as suggested by the Examiner.

Furthermore, the Applicants respectfully submit that the motivation to combine the teachings of Wollrath, Smith, and Ofer as suggest by the Examiner is not drawn from a convincing line of reasoning based on established scientific principles or legal precedent. For example, the Examiner's basis for rejecting Claim 1 is not adequately supported by simply making an assertion that since Wollrath teaches a client computer system and Ofer teaches a GUI, it would have been obvious to have the client computer system of Wollrath provide the GUI of Ofer. Again, there must be some suggestion either explicitly or implicitly in the references to combine the disclosed teachings. The mere fact that references can be combined or modified does not render the resultant combination obvious

unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990).

B. Claims 1-2, 6-18, and 20-21 have not been properly interpreted in light of the specification.

Examiner's Position

With respect to Claim 1, the Examiner states the following:

"Wollrath et al. discloses a storage area network management and configuration system comprising an enterprise network including a plurality of computer systems, the plurality of computer systems including server computer systems and client computer systems (column 2, lines 46-64, Figure 7, column 10, lines 41-55) wherein the server computer systems include a server component (Figure 8, 1100), and the client computer systems include a client component (Figure 8, 1000)."

Also, "Wollrath et al. teaches the client computer system in order to disclose the limitation: the graphical user interface provided by the client component at a client computer system."

Applicants' Rebuttal to Examiner's Position

With respect to Claim 1, the Examiner has not considered the server component and client component features of the present invention in view of the specification. More specifically, the server component and client component of the present invention, when considered in light of the specification, refer to software used to administer the RAID-based disk arrays (see specification page 12, lines 4-5, and numerous other discussions throughout specification). The Examiner has relied upon the server component and client component of Wollrath as teaching the server component and client component of the

present invention. However, the server component and client component as taught by Wollrath are not related at all to the server component and client component of the present invention. The following excerpts from Wollrath provide a basic understanding of the server component and client component as taught by Wollrath:

"A method invocation (MI) component located in each of the computers in the distributed processing system implements the distributed garbage collection scheme of this invention." (Wollrath, column 5, lines 59-62)

"Each of the MI components 730, 830 and 930 shown in FIG. 7 preferably includes both client components and server components." (Wollrath, column 10, lines 41-43)

Based on the above excerpts from Wollrath, it is clear that the server component and client component as taught by Wollrath refer to software used to implement the distributed garbage collection scheme as taught by Wollrath. Therefore, other than having common names, the server component and the client component of Wollrath are completely different from the server component and the client component of Claim 1 when viewed in light of the specification. During patent examination, the pending claims must be given their broadest reasonable interpretation consistent with the specification. *In re Hyatt*, 211 F.3d 1367, 1372, 54 USPQ2d 1664, 1667 (Fed. Cir. 2000). When the specification provides definitions for terms appearing in the claims, the specification can be used in interpreting claim language. *In re Vogel*, 422 F.2d 438, 441, 164 USPQ 619, 622 (CCPA 1970). "Claims are not to be read in a vacuum, and limitations therein are to be interpreted in light of the specification in giving them their 'broadest reasonable interpretation'." 710 F.2d at 802, 218 USPQ at 292 (quoting *In re Okuzawa*, 537 F.2d 545, 548, 190 USPQ 464, 466 (CCPA 1976)) (emphasis in original).

- C. The combination of references as relied upon by the Examiner fail to teach or suggest all limitations of Claims 1-2, 6-18, and 20-21 as required to establish a *prima facie* case of obviousness.**

Examiner's Position

As discussed in Section VIII.B. above, the Examiner has relied upon Wollrath to teach the server component and client component of the present invention. Also, the Examiner has relied upon Ofer to teach the GUI of Claim 1. More specifically, the Examiner states the following:

"Ofer et al. teaches the graphical user interface provides a graphical representation and icon links to configuration tools for controlling the RAID array of disks of the storage enclosure. Ofer et al. cites "a method for configuring a mass storage system, in which an array of disk storage devices connect to a storage controller and a plurality of host computers also connect to the storage controller, provide the capability of using the graphical user interface, modify the system status or configuration" (see abstract); Ofer also shows selecting and structurally defining the RAID array of disks of the storage enclosure (Ofer cites at column 4, lines 50-60 "to easily modify those connections using a convenient graphical user interface at the host computer, enables a user to modify, on the fly, the entire logical structure of the disk storage system" read as the structured RAID array of disks"

Applicants' Rebuttal to Examiner's Position

As discussed above in Section VIII.B., other than having common names, the server component and the client component of Wollrath are completely different from the server component and the client component of Claim 1, when viewed in light of the specification. The Examiner has relied solely upon Wollrath to teach the server component

and client component of the present invention. Therefore, since the server component and client component of the present invention are neither taught nor suggested by either Wollrath, Smith, Ofer, or the combination thereof, the Examiner has not demonstrated a prior art teaching or suggestion of the server component and client component of the present invention. To establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974).

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The Examiner has relied solely upon Ofer to teach the GUI of the present invention. However, the GUI of Ofer as relied upon by the Examiner does not teach or suggest the GUI as required by Claim 1, wherein the GUI required by Claim 1 is provided by the client component at a client computer system. The GUI of Ofer, as relied upon by the Examiner as a basis of rejection, is provided at a host computer that is connected to the storage device. In contrast, with respect to Claim 1, the storage enclosure is connected to the server computer system and the GUI is provided by the client component at the client computer system. Furthermore, since the Examiner has not provided a reference that teaches the client component of the presently claimed invention, it is impossible to conclude that the combined teachings of Wollrath, Smith, and Ofer teach or suggest a GUI provided by the client component at the client computer system, as required by Claim 1.

Additionally, the GUI of Ofer as relied upon by the Examiner does not teach or suggest the requirements of Claim 1 with respect to providing a graphical representation of the enterprise network and icon links to configuration tools for selecting and structurally defining at the client computer system the RAID array of disks of the storage enclosure connected to the server computer system. More specifically, the present invention requires that the configuration tools (associated with the icon links represented by the GUI) allow the RAID array of disks of the storage enclosure that is connected to the server computer

system be selected and structurally defined at the client computer system. In other words, the GUI provided by the client component of the present invention allows the RAID array of disks that are connected to the server computer system to be selected and structurally defined at (i.e., from) the client computer system. Again, to establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. Also, all of the elements and limitations of the claim must be considered as a whole when determining patentability.

D. The features recited in each of Claims 1-2, 6-18, and 20-21, respectively, have not been properly considered as a whole.

Examiner's Position

With respect to Claim 1, the Examiner has relied upon Ofer to teach "a graphical user interface provided by the client component at a client computer system, the graphical user interface provides a graphical representation of the enterprise network and icon links to configuration tools for selecting and structurally defining at the client computer system the RAID array of disks of the storage enclosure connected to the server computer system."

Applicants' Rebuttal to Examiner's Position

With respect to Claim 1, the Applicants respectfully submit that all combined features of Claim 1 have not been considered as a whole by the Examiner. More specifically, the client component of Claim 1 must be considered as being capable of providing a GUI. Also, the GUI provided by the client component must in turn provide a graphical representation of the enterprise network and icon links to configuration tools for selecting and structurally defining, at the client computer system, the RAID array of disks

of the storage enclosure that is connected to the server computer system. The Examiner has not addressed the requirement that the GUI, having the above-mentioned capabilities, be provided by the client component of the present invention. In determining the differences between the prior art and the claims, the question under 35 U.S.C. 103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious. *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 218 USPQ 871 (Fed. Cir. 1983).

E. The references relied upon by the Examiner, either separately or in combination, do not motivate or suggest to one of ordinary skill in the art at the time of the invention to combine the reference teachings in a manner that would make the invention as recited in Claims 3-5 (Group II) obvious.

Rejections

Claims 3-5 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Wollrath in view of Smith, further in view of Ofer, and further in view of Leong et al. ("Leong") (U.S. Pat. No. 6,269,398).

Summary of Group II Claims

Claim 3 represents the broadest independent claim of Group II (i.e., Claims 3-5). Since the claims of Group II will stand or fall together, the Applicants choose to argue the patentability of Claim 3. Therefore, the arguments presented in Sections VIII.E. through VIII.H. of this Appeal Brief will be directed to Claim 3. However, for completeness, each of the claims in Group II are addressed in the following summary.

Claim 3 defines a storage area network management and configuration system ("system"). The system includes an enterprise network that includes a plurality of

computer systems. The plurality of computer systems within the enterprise network includes server computer systems and client computer systems. The server computer systems include a server component, and the client computer systems include a client component. The system also includes a storage enclosure that is connected to a server computer system within the enterprise network. The system further includes a graphical user interface (GUI) provided by the client component at a client computer system within the enterprise network. The GUI provides a graphical representation of the enterprise network and icon links to configuration tools for selecting and structurally defining the storage enclosure connected to the server computer system. Thus, the GUI provided at the client computer system enables selection and structural definition of the storage enclosure connected to the server computer system. Additionally, the GUI includes an array builder link that, when selected, provides selection tabs to allow array building to be performed from either an array template or from scratch. The selection tabs provided by the array builder link also allow assignment of an array level when building the array. Claims 4-5 further define the system with respect to performing array building from an array template.

Summary of Leong Reference

Leong teaches methods for discovering "router" entities in order to create graphical user interfaces. The graphical user interfaces can then be used to generate icons for viewing aspects of the routers. Specifically, Leong (Figure 4, Items 441, 442, and 443) teaches the use of GUI buttons to link to views of router interface configurations, router fault statistics and history, and router interface performance statistics and history. In teaching these methods, Leong discloses methods for discovering connections of the routers to better interface with a wider area network.

Examiner's Position

The Examiner has relied upon the combination of Wollrath, Smith, and Ofer and the associated reasoning, as previously discussed with respect to Claim 1 in Section VIII.A., as a basis for rejecting features of Claim 3 that are similar to those features of Claim 1. Additionally, the Examiner has combined Leong with Wollrath, Smith, and Ofer in an attempt to provide a basis for rejecting the array builder link feature of Claim 3.

The Examiner has stated that the motivation to combine Wollrath, Smith, Ofer, and Leong in the manner asserted by the Examiner to reject Claim 3 is as follows:

"It would have been obvious to one of ordinary skill in the art, having the teachings of Wollrath et al., Smith et al., Ofer et al. and Leong et al. before them at the time the invention was made to modify the storage area network management taught by Wollrath et al., Smith et al., Ofer et al. to include the array builder link of Leong et al., with the motivation being to enhance the processing between storage enclosure and the graphical representation and linking icons as taught by Leong et al."

Applicants' Rebuttal to Examiner's Position

The Board is respectfully requested to note that since a portion of Claim 3 includes features similar to those recited in Claim 1, and that since the Examiner has applied the same combination of references as a basis for rejecting features common to both Claims 3 and 1, the following argument is necessarily similar to that provided in Section VIII.A. above with respect to Claim 1. However, the following argument also addresses a lack of motivation or suggestion to combine Leong with Wollrath, Smith, and Ofer as suggested by the Examiner.

Leong (Figure 4, Items 441, 442, and 443) as relied upon by the Examiner as a basis for rejecting Claim 3, teaches GUI buttons for linking to views of router interface

configurations, router fault statistics and history, and router interface performance statistics and history. A storage area network management and configuration system as recited in Claim 3 is completely unrelated to router interface configurations, statistics, and history. Furthermore, the act of viewing a router interface configuration, set of statistics associated with a router interface, or history related to a router interface as disclosed by Leong, neither teaches nor suggests the creation of an array of disks as facilitated by the array builder link and associated selection tabs as required by Claim 3. "In order to rely on a reference as a basis for rejection of an applicant's invention, the reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the inventor was concerned." *In re Oetiker*, 977 F.2d 1443, 1446, 24 USPQ2d 1443, 1445 (Fed. Cir. 1992). The Applicants respectfully submit that the router interface GUI of Leong is neither in the field of, nor is reasonably pertinent to, storage area network management and configuration as recited in Claim 3. Additionally, the Applicants submit that the Leong reference would not have commended itself to an inventor's attention in considering the problems associated with storage area network management and configuration. Furthermore, there is no suggestion in the cited art of record to have combined Leong with Wollrath, Smith, and Ofer as suggested by the Examiner.

Further with respect to Claim 3, an inventor skilled in the art at the time of the invention would not have looked to Wollrath in developing the claimed invention. Wollrath is related to resource leasing, which is an entirely different technology than that embodied in Claim 3 as a whole. Additionally, the teachings of Wollrath are not related to the teachings of either Smith, Ofer, or Leong when considered in view of Claim 3. There is no suggestion or motivation, either explicitly or implicitly, in either Wollrath, Smith, Ofer, or Leong to have combined the teachings of Wollrath with the teachings of Smith, Ofer, and Leong to arrive at the present invention as embodied in Claim 3. Obviousness can only

be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art. MPEP §2143.01 The test for obviousness is what the combined teachings of the references would have suggested to one of ordinary skill in the art. MPEP §2143.01 However, the level of ordinary skill in the art cannot be relied upon to provide the suggestion to combine references. *Al-Site Corp. v. VSI Int'l Inc.*, 174 F.3d 1308, 50 USPQ2d 1161 (Fed. Cir. 1999). A statement that modifications of the prior art to meet the claimed invention would have been within the ordinary skill of the art at the time the claimed invention was made is not sufficient to establish a prima facie case of obviousness without some objective reason to combine the teachings of the references. *Ex parte Levengood*, 28 USPQ2d 1300 (Bd. Pat. App. & Inter. 1993).

The Examiner has stated that the motivation to combine the teachings of Wollrath with the teachings of Smith, Ofer, and Leong would be "for the purpose of making it more convenient to manage the storage device over the network as taught by Ofer et al." The motivation to combine the cited art as suggested by the Examiner is simply a construction based on hindsight reasoning. The Applicants submit that neither Wollrath, Smith, Ofer, Leong, nor the combination thereof, provide the motivation to combine their respective teachings as suggested by the Examiner. The rationale for combining references requires a recognition either expressly or impliedly in the prior art or drawn from a convincing line of reasoning based on established scientific principles or legal precedent, that some advantage or expected beneficial result would have been produced by the combination of references. *In re Sernaker*, 702 F.2d 989, 994-95, 217 USPQ 1, 5-6 (Fed. Cir. 1983). The Applicants respectfully submit that the references neither expressly nor implicitly provide the motivation to combine their respective teachings as suggested by the Examiner.

Furthermore, the Applicants respectfully submit that the motivation to combine the teachings of Wollrath, Smith, Ofer, and Leong as suggested by the Examiner is not drawn from a convincing line of reasoning based on established scientific principles or legal precedent. For example, the Examiner's basis for rejecting Claim 3 is not adequately supported by simply making an assertion that since Wollrath teaches a client computer system and Ofer teaches a GUI, it would have been obvious to have the client computer system of Wollrath provide the GUI of Ofer. Again, there must be some suggestion either explicitly or implicitly in the references to combine the teachings as claimed. The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990).

F. Claims 3-5 have not been properly interpreted in light of the specification.

Examiner's Position

The Examiner has relied upon the combination of Wollrath, Smith, and Ofer and the associated reasoning, as previously discussed with respect to Claim 1 in Section VIII.B., as a basis for rejecting features of Claim 3 that are similar to features of Claim 1. Thus, the Examiner's Position is equivalent to that discussed above in Section VIII.B. Therefore, the Examiner has relied upon the disclosure of Wollrath to teach the server component and the client component features of Claim 3.

Applicants' Rebuttal to Examiner's Position

The Applicants' Rebuttal to Examiner's Position as discussed above in Section VIII.B. with respect to Claim 1 is equally applicable to the present discussion of Claim 3.

To minimize redundancy, the Board is respectfully requested to refer to Section VIII.B. above for the present Applicants' Rebuttal to Examiner's Position.

- G. The combination of references as relied upon by the Examiner fail to teach or suggest all limitations of Claims 3-5 as required to establish a *prima facie* case of obviousness.**

Examiner's Position

As discussed above in Section VIII.C., the Examiner has relied upon Wollrath to teach the server component and client component features required by Claim 3. Also, the Examiner has relied upon Ofer to teach the GUI feature required by Claim 3. To minimize redundancy, the Board is respectfully requested to refer to Section VIII.C. for a more complete discussion of the Examiner's Position with respect to the server component, client component, and GUI features of Claim 3.

Additionally, the Examiner has relied upon Leong to teach the array builder link feature required by Claim 3. More specifically, the Examiner has stated the following:

"Leong et al. teaches an array builder link (figure 4, 441, 442, 443). The elements are represented as the tabs for the array builder link."

Applicants' Rebuttal to Examiner's Position

With respect to Claims 3, Leong does not teach the array builder link as claimed in the present invention. The array builder link of the claimed invention provides selection tabs to allow array building from an array template or from scratch. Leong (Figure 4, Items 441, 442, and 443), as referenced by the Office as a basis for rejecting Claim 3, does not teach or suggest the array builder icon link or associated selection tabs as claimed in the present invention. Actually, Leong (Figure 4, Items 441, 442, and 443), refers to GUI

buttons for linking to views of router interface configurations, router fault statistics and history, and router interface performance statistics and history. The array builder link and associated selection tabs as required by Claim 3 is completely unrelated to router interface configurations, statistics, and history. Furthermore, the act of viewing a router interface configuration, set of router interface statistics, or a router interface history as disclosed by Leong neither teaches nor suggests array building from an array template or from scratch as required by Claim 3.

As discussed above in Section VIII.C., since the server component and client component of the present invention are neither taught nor suggested by either Wollrath, Smith, Ofer, Leong, or the combination thereof, the Examiner has not demonstrated a prior art teaching or suggestion of the server component and client component of the present invention. Also, as discussed above in Section VIII.C., since the GUI of the present invention is neither taught nor suggested by either Wollrath, Smith, Ofer, Leong, or the combination thereof, the Examiner has not demonstrated a prior art teaching or suggestion of the GUI of the present invention. Furthermore, since the array builder link capable of providing selection tabs to allow array building from an array template or from scratch is neither taught nor suggested by either Wollrath, Smith, Ofer, Leong, or the combination thereof, the Examiner has not demonstrated a prior art teaching or suggestion of the array builder link of the present invention. To establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974).

H. The features recited in each of Claims 3-5, respectively, have not been properly considered as a whole.

Examiner's Position

As with Claim 1, the Examiner has relied upon Ofer to teach "a graphical user interface provided by the client component at a client computer system, the graphical user interface provides a graphical representation of the enterprise network and icon links to configuration tools for selecting and structurally defining at the client computer system the storage enclosure connected to the server computer system."

Applicants' Rebuttal to Examiner's Position

The Applicants' Rebuttal to Examiner's Position as discussed above in Section VIII.D. with respect to Claim 1 is equally applicable to the present discussion of Claim 3. To minimize redundancy, the Board is respectfully requested to refer to Section VIII.D. above for the present Applicants' Rebuttal to Examiner's Position.

I. Conclusion

With respect to the claims of Group I, neither the teachings nor the nature of the problem solved in either Wollrath, Smith, or Ofer, or the combination thereof, motivate or suggest to one of ordinary skill in the art at the time of the invention to combine the reference teachings in a manner that would make the claimed invention obvious. Furthermore, the combination of Wollrath, Smith, and Ofer as asserted by the Examiner fails to teach all of the claimed features. Additionally, the Examiner has failed to consider the claimed features as a whole and in light of the specification. For at least these reasons, the Applicants respectfully submit that the claims of Group I (Claims 1-2, 6-18, and 20-21) are patentable over the cited art of record.

With respect to the claims of Group II, neither the teachings nor the nature of the problem solved in either Wollrath, Smith, Ofer, or Leong, or the combination thereof, motivate or suggest to one of ordinary skill in the art at the time of the invention to combine the reference teachings in a manner that would make the claimed invention obvious. Furthermore, the combination of Wollrath, Smith, Ofer, and Leong as asserted by the Examiner fails to teach all of the claimed features. Additionally, the Examiner has failed to consider the claimed features as a whole and in light of the specification. For at least these reasons, the Applicants respectfully submit that the claims of Group II (Claims 3-5) are patentable over the cited art of record.

The Applicants would also like to respectfully bring to the Board's attention that during prosecution of this case the Examiner has had at least two opportunities (i.e., (1) after the original filing and (2) after the Request for Continued Examination filing) to perform a search in order to find and apply art that is more relevant to the presented claims. The Applicants therefore conclude that the cited art of record must represent what the Office believes to be the strongest cited art available. In view of the shortcomings of the cited art, as discussed in the Applicants' aforementioned arguments, the Applicants submit that the presently claimed invention is patentable over the cited art of record.

The Applicants respectfully request that the Board consider each group of claims separately. The Applicants further respectfully request that the Board consider the elements of each claim as a whole relative to the teachings of the cited art.

In sum, the Applicants submit that the rejections of the Group I claims (Claims 1-2, 6-18, and 20-21) under 35 U.S.C. §103(a) and the Group II claims (Claims 3-5) under 35 U.S.C. §103(a) are in error, and respectfully request that the Board of Appeals and Interferences reverse the Examiner's rejections of the claims on appeal.

Respectfully Submitted,
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APPENDIX A

CLAIMS ON APPEAL

1. A storage area network management and configuration system, comprising:
an enterprise network including a plurality of computer systems, the plurality of computer systems including server computer systems and client computer systems, wherein the server computer systems include a server component and the client computer systems include a client component;

a storage enclosure being connected to a server computer system having the server component, the storage enclosure having a RAID array of disks; and

a graphical user interface provided by the client component at a client computer system, the graphical user interface provides a graphical representation of the enterprise network and icon links to configuration tools for selecting and structurally defining at the client computer system the RAID array of disks of the storage enclosure connected to the server computer system.

2. A storage area network management and configuration system as recited in claim 1, wherein the configuration tools comprise:

an array modifier link for selecting a RAID array that is desired to be modified in terms of adjusting a drive selection and RAID level.

3. A storage area network management and configuration system, comprising:
an enterprise network including a plurality of computer systems, the plurality of computer systems including server computer systems and client computer systems, wherein the server computer systems include a server component and the client computer systems include a client component;

a storage enclosure being connected to a server computer system having the server component; and

a graphical user interface provided by the client component at a client computer system, the graphical user interface provides a graphical representation of the enterprise network and icon links to configuration tools for selecting and structurally defining at the client computer system the storage enclosure connected to the server computer system, the graphical representation of the enterprise network and icon links to configuration tools further includes an array builder link, the array builder link when selected provides selection tabs to allow array building from an array template or from scratch, the selection tabs being further configured to allow a level assignment for array building.

4. A storage area network management and configuration system as recited in claim 3, wherein the array building from an array template, comprises:

hardware being selectable for configuration, the hardware to configure is selected from the storage enclosure or from additional storage enclosures that are connected to the enterprise network;

an array template that contains a RAID configuration scheme that is optimally selected for a particular storage application; and

code for dragging the selected array template, that is in the form of an icon, over the selected hardware or dragging the selected hardware over the selected array template, the dragging is configured to automatically apply the RAID configuration scheme.

5. A storage area network management and configuration system as recited in claim 4, wherein the RAID configuration scheme includes,

a RAID level;

- a number of drives in the selected hardware;
- a number of spare drives;
- a stripe size; and
- an array address.

6. A storage area network management and configuration system as recited in claim 1, wherein the configuration tools comprise:

- an enterprise monitor link, when selected the monitor link provides a window wherein monitoring settings can be set.

7. A storage area network management and configuration system as recited in claim 6, wherein the monitoring settings includes,

- a failure indicator; and
- a disk capacity indicator.

8. A storage area network management and configuration system as recited in claim 7, wherein the monitoring settings further include,

- a temperature indicator for the storage enclosure;
- a battery health indicator; and
- a power supply health indicator.

9. A storage area network management and configuration system as recited in claim 6, further comprising:

- an enterprise monitor window for providing a quick view of selected storage enclosure parameters.

10. A storage area network management and configuration system as recited in claim 1, wherein the configuration tools comprise:

an event notifier link, when selected provides customizable failure and status notifications.

11. A storage area network management and configuration system as recited in claim 10, wherein the customizable failure and status notifications include,

setting user notification profiles, the profiles include communication information.

12. A storage area network management and configuration system as recited in claim 11, wherein the communication information includes e-mail information and pager information.

13. A storage area network management and configuration system as recited in claim 1, wherein the configuration tools comprise:

an enterprise icon, when selected allows viewing of the enterprise network that includes the plurality of computer systems and associated storage enclosures that are connected to server computer systems having the server component.

14. A storage area network management and configuration system as recited in claim 13, wherein the viewing of the enterprise network can be of physical devices or logical devices, and the physical devices and the logical devices can be displayed in one of a tree view and a quick view.

15. A storage area network management and configuration system as recited in claim 14, further comprising:

a graphical failure representation is provided of selected drives of the storage enclosure, the graphical failure representation being configured to be displayed on a failed drive when the failed drive is in a viewable setting and on the storage enclosure when the failed drive is not in the viewable setting.

16. A storage area network management and configuration system as recited in claim 1, wherein the client component provides a user administrator the management and configuration control to the storage enclosure of the enterprise network.

17. A storage area network management and configuration system as recited in claim 1, wherein the enterprise network can include a plurality of storage enclosures that are connected to selected computer systems that are part of the enterprise network and that have the server component.

18. A storage area network system, comprising:

- a server computer system being connected to an enterprise network;
- a storage enclosure being connected to the server computer system;
- a client computer system having a graphical user interface control for enabling a user to remotely select and structurally define drives of the storage enclosure, the drives of the storage enclosure being an array of drives, the graphical user interface being configured to enable the user to remotely assign a level to the array of drives.

20. A storage area network system as recited in claim 18, wherein the graphical user interface control includes one or more of an array modifier icon link, an enterprise monitor icon link, an array builder icon link, an event notifier icon link, an unconfigured hardware icon link, a templates icon link, and an enterprise icon link.

21. A storage area network system, comprising:
a server computer system being connected to an enterprise network;
a storage enclosure being connected to the server computer system; and
a client computer system having a graphical user interface control for enabling a user to remotely select and structurally define an array of drives of the storage enclosure, wherein select and structurally define the array of drives includes assign a level to the array of drives;

wherein the graphical user interface control includes one or more of an array modifier icon link, an enterprise monitor icon link, an array builder icon link, an event notifier icon link, an unconfigured hardware icon link, a templates icon link, and an enterprise icon link.